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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/868,914	07/11/2001	Mitsuhiro Mori	P21159	4688

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EXAMINER	
LESPERANCE, JEAN E	

ART UNIT	PAPER NUMBER
2674	8

DATE MAILED: 02/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/868,914	MORI ET AL.	
	Examiner	Art Unit	
	Jean E Lesperance	2674	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 July 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3 and 5-45* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5,6,9,10,12-31,34,35 and 39-45* is/are rejected.

7)☒ Claim(s) *7,8,11,32,33 and 36-38* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 July 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 5-7.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-3 and 5-45 are presented for examination.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 12 and 42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The limitations "said driving pulse includes a driving pulse which makes the transmission from a first potential to a second potential and takes a maximal value and a minimal value at least once during the transition from the first potential to the second potential, and further comprising a final driving circuit for driving said driving pulse such that the transition speed from the final extreme value to the second potential is lower than the transition speed from the first potential to an extreme value immediately after that and the transition speed from the subsequent extreme value to an extreme value immediately after that" are not clear and definite. The final extreme value does not have antecedent basis. The final extreme value should be replaced by a final extreme value. Correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 5, 6, 9,10, 12-31, 34, 35, and 39-45 are rejected under 35 102 (e) as being unpatentable over U.S. Patent # 6,369,781 ("Hashimoto et al.").

As for claims 1, 39, 40, and 41, Hashimoto et al. teach a plasma display panel 1C which is inherently including a plurality of discharge cells (Fig.26) corresponding to a display panel including said plurality of discharge cells; a driving circuit for row electrode X Fig.26 (14C) corresponding to a first driving circuit for applying a driving pulse to the selected discharge cell in said display panel to induce a first discharge; and driving circuit Fig.26 (15C) for the row electrode Y corresponding to a second driving circuit for increasing, after a voltage of the driving pulse is reduced by the first discharge, the voltage of the driving pulse, to induce a second discharge subsequently to said first discharge. It is inherent in the art to have a first voltage applies to a discharge cell from a scan circuit and a second voltage to a discharge cell. The first applied voltage would decrease by the time the second voltage starts increasing in the discharge cell.

As for claim 2, Hashimoto et al. teach a pulse which has both the priming effect and the erasing effect and further has a "self-control function" that relieves the variation of the cells after the erase, is a rather good one for a stable operation of the

plasma display panel (column 7, lines 55-58) corresponding to said second driving circuit induces said second discharge while a priming effect produced by said first discharge is obtained.

As for claims 3 and 5, Hashimoto et al. teach since the time lag of discharge is generally reduced when a high voltage is applied, a reliable erase can be achieved with the voltage across the discharge gap which is apparently high as the amount of wall charges increases though the erase pulse Exp is equivalent in voltage to the sustain pulse. To eliminate the time lag of discharge as much as possible, as mentioned above, it is desirable that an interval between the second assistant pulse Subp2 and the erase pulse Exp should be as short as possible (column 25, lines 47-55) teach an interval between the peak of said first discharge and the peak of said second discharge is not less than 100 ns nor more than 550 ns. The intervals not less than 100 ns nor more than 550 ns and not less than 300 ns nor more than 550 ns. are design choices.

As for claim 6, Hashimoto et al. teach the potential Vwj of the column electrode Wj is switched to make a fine tune of luminance during the sustain discharge period and combining the different luminances allows precise linearity in display gradation of the PDP (column 32, lines 38-42) corresponding to the peak intensity of said second discharge is not less than the peak intensity of said first discharge.

As for claims 9 and 10, Hashimoto et al. teach a sustain discharge which is performed a specified number of times to obtain a predetermined luminance includes a first discharge mainly induced by externally-applied voltage and a second discharge

mainly induced by wall charges, and an assistant pulse is applied in a direction to increase the second discharge (abstract) corresponding to said third driving circuit repeats an operation for increasing, after the voltage of the driving pulse is reduced by the discharge, the voltage of the driving pulse, to continuously induce discharges a plurality of times subsequently to the second discharge.

As for claims 12, 13, and 42, Hashimoto et al. teach the second discharge on the fall of a pulse depends on the falling rate and it is necessary to fallen the pulse earlier than the statistic time lag of discharge. If the second discharge occurs at some midpoint in the fall of the pulse, the second discharge decreases as the applied voltage works in a direction to lower the effective voltage, to makes it impossible to effectively use the second discharge. FIG. 5 shows that this value is 300 nsec or less. This value also slightly varies depending on the cell structure, a uniform result can be achieved in the area available for the PDP. The characteristic value can be obtained as a changing point by changing the falling rate (column 21, lines 26-37) corresponding to said driving pulse includes a driving pulse which makes the transmission from a first potential to a second potential and takes a maximal value and a minimal value at least once during the transition from the first potential to the second potential, and further comprising a final driving circuit for driving said driving pulse such that the transition speed from the final extreme value to the second potential is lower than the transition speed from the first potential to an extreme value immediately after that and the transition speed from the subsequent extreme value to an extreme value immediately after that.

As for claims 14-20, 34, 35, 43, 44, 45, Hashimoto et al. teach a plasma display panel 1C which is inherently including a plurality of discharge cells (Fig.26) corresponding a display panel including said plurality of discharge cells; a sustain discharge comprising a first discharge and a second discharge, said first discharge being mainly induced by externally-applied voltage which occurs on a rise of a sustain pulse, said second discharge being mainly induced by wall charges generated by said first discharge which occurs on a fall of said sustain pulse (column 40, lines 20-25) corresponding to a driving circuit for applying a driving pulse to the selected discharge cell in said display panel to induce a second discharge after inducing a first discharge; a problem of imprecise gradation display because of deterioration in luminance caused by a voltage drop due to the display rate. Specifically, the driving method is intended to precisely obtain the gradation display that should be originally achieved by providing means for detecting the display rate and means for controlling the potential difference according to the display rate. The prior art 3 seems to be effective for high-definition PDP having a large number of display lines, but has problems of complicate circuit configuration and higher cost when two or more power supplies are provided for supplying a sustain voltage (column 5, lines 51-62) corresponding to a detection circuit for detecting the lighting rate of the discharge cells which are simultaneously turned on out of said plurality of discharge cells; and a control circuit Fig.26 (40C) corresponding to a control circuit for controlling said driving circuit such that said driving pulse is changed depending on the lighting rate detected by said detection circuit; IG. 23 illustrates a constitution of sub-fields in one field used for a method of driving a plasma

display panel in accordance with the eighth preferred embodiment of the present invention. One field consists of eight sub-fields and in each sub-field, binary is weighted with the sustain pulse. The sub-field having the least information is generally termed "LSB" and those having the second least information, the third least information . . . are termed "2LSB", "3LSB" 9column 26, lines 60-67) corresponding to said detection circuit comprising a sub-field lighting rate detection circuit for detecting the lighting rate for each sub-field.

As for claim 21-31, Hashimoto et al. teach The PDP device 50C further comprises a driving circuit 14C for the row electrode X, a driving circuit 15C for the row electrode Y and the driving circuit 18C for the column electrode W. Respective voltages are supplied for the electrodes 4C, 5C and 8C from a power-supply circuit 41C through the driving circuits 14C, 15C and 18C in response to a video signal, a control signal generated by a control circuit Fig.26 (40C)corresponding to said control circuit controls said second driving circuit so as to delay the timing at which the voltage of the driving pulse is increased with the increase in the lighting rate detected by said detection circuit, and advance the timing at which the voltage of said driving pulse is increased when the lighting rate is increased to not less than the predetermined value.

Allowable Subject Matter

Claims 7, 8, 11, 32, 33, and 36-38 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the claimed invention is directed to display device. Claims 7 and 32 identify a uniquely distinct feature "said first driving circuit comprises an inductance circuit having at least one inductance element having its one end connected to said capacitive load, and a resonance driving circuit for outputting said driving pulse due to LC resonance by said capacitive load and said inductance element". Claim 8 identifies a uniquely distinct feature "said first driving circuit comprises a first capacitive element provided outside said display panel as a current supply source for said driving pulse, said first capacitive element recovering charges stored in said discharge cells". Claim 33 identifies a uniquely distinct feature "said inductance circuit includes a variable inductance circuit capable of changing an inductance value, and further comprising an inductance control circuit for changing the inductance value of said variable inductance circuit depending on the lighting rate detected by said detection circuit". Claim 36 identifies a uniquely distinct feature "said second driving circuit comprises a second capacitive element provided outside said display panel as a current supply source for said driving pulse, and a voltage source for charging said second capacitive element to a predetermined voltage". Claims 37 and 38 identify a uniquely distinct feature "said voltage source includes a variable voltage source capable of changing its output voltage, and further comprising a potential detection circuit for detecting a potential of said driving pulse which is changed by said first discharge, and a voltage control circuit for controlling an output voltage of said variable voltage source such that the larger the amount of change in the potential detected by said potential detection circuit is, the lower the charging

voltage for said second capacitive element becomes". The closest art, Hashimoto et al. as discussed above, either singularly or in combination, fails to anticipate or render obvious the above limitations obvious.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean Lesperance whose telephone number is (703) 308-6413. The examiner can normally be reached on from Monday to Friday between 8:OOAM and 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe, can be reached on (703) 305-4709 .

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Jean Lesperance

Art Unit 2674

Date 2-11-2004

RICHARD HJERPE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600